WHAT IS CLAIMED IS:

1. A molecular sieve comprising an oxide of silicon and an oxide of zinc and having the framework topology of zeolite beta, wherein the molecular sieve contains zinc in its crystal framework.

2. The molecular sieve of claim 1 wherein the oxides of silicon and zinc are the only oxides in the framework of the molecular sieve.

3. A molecular sieve having the topology of zeolite beta, and having a composition, as synthesized and in the anhydrous state, in terms of mole ratios as follows:

SiO_2/ZnO	10-100
M/SiO_2	0.01-0.1
Q/SiO_2	0.07-0.14

wherein M is lithium or a mixture of lithium and another alkali metal; and Q comprises a tetraethylammonium cation, wherein the molecular sieve contains zinc in its crystal framework.

4. A molecular sieve comprising silicon oxide, zinc oxide, and an oxide selected from aluminum oxide, boron oxide, gallium oxide, iron oxide, titanium oxide, vanadium oxide, zirconium oxide, tin oxide or mixtures thereof and having the framework topology of zeolite beta, wherein the molecular sieve contains zinc in its crystal framework.

5. The molecular sieve of claim 4 comprising silicon oxide, zinc oxide and aluminum oxide.

6. The molecular sieve of claim 4 comprising silicon oxide, zinc oxide and boron oxide.

7. The molecular sieve of claim 4 comprising silicon oxide, zinc oxide and gallium oxide.

8. The molecular sieve of claim 4 comprising silicon oxide, zinc oxide and titanium oxide.

9. A molecular sieve having the topology of zeolite beta, and having a composition, as synthesized and in the anhydrous state, in terms of mole ratios as follows:

SiO_2/ZnO	10-100
SiO_2/W	30-250
M/SiO_2	0.01-0.1
Q/SiO_2	0.07-0.14

wherein W is an oxide of aluminum, boron, gallium, vanadium, iron, titanium or mixtures thereof, M is lithium or a mixture of lithium and another alkali metal; and Q comprises a tetraethylammonium cation, wherein the molecular sieve contains zinc in its crystal framework.

10. A method of preparing a crystalline material comprising an oxide of silicon and an oxide of zinc and having the framework topology of zeolite beta, wherein the molecular sieve contains zinc in its crystal framework, said method comprising contacting in admixture under crystallization conditions sources of said oxides, a source of lithium or a mixture of lithium and another alkali metal and a templating agent comprising a tetraethylammonium cation.

11. The method of claim 10 wherein the source of the alkali metal contains no alkali metal other than lithium.

12. The method of claim 10 wherein the source of alkali metal contains lithium and another alkali metal.

13. A method of preparing a crystalline material comprising an oxide of silicon, an oxide of zinc and an oxide selected from aluminum oxide, boron oxide, gallium oxide, vanadium oxide, iron oxide, titanium oxide or mixtures thereof and having the

framework topology of zeolite beta, wherein the molecular sieve contains zinc in its crystal framework, said method comprising contacting in admixture under crystallization conditions sources of said oxides, a source of lithium or a mixture of lithium and another alkali metal and a templating agent comprising a tetraethylammonium cation.

14. A method of removing a tetraethylammonium organic template from the pores of a molecular sieve, said method comprising contacting the molecular sieve with acetic acid or a mixture of acetic acid and pyridine at elevated temperature for a time sufficient to remove essentially all of the tetraethylammonium organic template from the molecular sieve.

15. The method of claim 14 wherein the molecular sieve has the topology of zeolite beta.

16. The method of claim 14 wherein the elevated temperature is 60°C or less.

17. The method of claim 14 wherein the elevated temperature is from about 80°C to about 135°C.

18. A method of removing an organic template from the pores of a molecular sieve and at the same time removing zinc atoms from the framework of the molecular sieve, wherein the molecular sieve comprises an oxide of silicon, an oxide of zinc and, optionally, an oxide selected from aluminum oxide, boron oxide, gallium oxide, vanadium oxide, iron oxide, titanium oxide and mixtures thereof, and having the framework topology of zeolite beta, said method comprising contacting the molecular sieve with acetic acid or a mixture of acetic acid and pyridine at elevated temperature for a time sufficient to remove essentially all of the organic template and zinc from the molecular sieve.

19. The method of claim 18 wherein the elevated temperature is about 60°C or less.

20. The method of claim 18 wherein the elevated temperature is from about 80°C to about

135°C.

21. A method of making a crystalline material comprising (1) contacting in admixture under crystallization conditions a source of silicon oxide, a source of zinc oxide, a source of lithium or a mixture of lithium and another alkali metal and a templating agent comprising a tetraethylammonium cation until a crystalline material comprised of oxides of silicon and zinc and having the topology of zeolite beta are formed, (2) contacting the crystals with acetic acid or a mixture of acetic acid and pyridine at an elevated temperature of about 60°C or less for a time sufficient to remove essentially all of the organic template and zinc from the crystals, and (3) contacting the crystals with a solution containing a source of aluminum, boron, gallium, iron, titanium, vanadium, zirconium, tin or mixtures thereof.

22. The product produced by the method of claim 18.

23. The product produced by the method of claim 21.

24. A crystalline molecular sieve having the topology of zeolite beta, a crystal size of less than one micron and a water adsorption capacity of less than 0.05 g/g of molecular sieve.

25. A crystalline silicate molecular sieve having the topology of zeolite beta, a crystal size of less than one micron and a water adsorption capacity of less than 0.05 g/g of molecular sieve.

26. A method of preparing a crystalline material having the topology of zeolite beta comprising impregnating a silica-containing mesoporous material with an aqueous solution of tetraethylammonium cation in an amount sufficient to form a crystalline product having the topology of zeolite beta, and wherein the water to mesoporous material molar ratio is from about 0.5 to about 2, and subjecting the impregnated mesoporous material to crystallizing conditions of heat and pressure for a time sufficient to form crystals of a material having the topology of zeolite beta.

27. The method of claim 26 wherein the mesoporous material is an all-silica material.

28. The method of claim 26 wherein the mesoporous material comprises, in addition to silica, an oxide selected from the group consisting of aluminum oxide, boron oxide, titanium oxide, vanadium oxide, zirconium oxide, zinc oxide and mixtures thereof.

29. The method of claim 27 wherein the mesoporous material is MCM-41 or MCM-48.

30. The method of claim 28 wherein the mesoporous material is MCM-41 or MCM-48.

31. A process for converting hydrocarbons comprising contacting a hydrocarbonaceous feed at hydrocarbon converting conditions with a catalyst comprising a molecular sieve comprising an silicon oxide, zinc oxide, and an oxide selected from aluminum oxide, boron oxide, gallium oxide, iron oxide, vanadium oxide, zirconium oxide, tin oxide or mixtures thereof and having the framework topology of zeolite beta.

32. The process of claim 31 wherein the molecular sieve is predominantly in the hydrogen form.

33. The process of claim 31 wherein the molecular sieve is substantially free of acidity.

34. The process of claim 31 wherein the process is a hydrocracking process comprising contacting the catalyst with a hydrocarbon feedstock under hydrocracking conditions.

35. The process of claim 43 wherein the molecular sieve is predominantly in the hydrogen form.

36. The process of claim 31 wherein the process is a dewaxing process comprising contacting the catalyst with a hydrocarbon feedstock under dewaxing conditions.

37. The process of claim 36 wherein the molecular sieve is predominantly in the hydrogen

form.

38. The process of claim 31 wherein the process is a process for improving the viscosity index of a dewaxed product of waxy hydrocarbon feeds comprising contacting the catalyst with a waxy hydrocarbon feed under isomerization dewaxing conditions.

39. The process of claim 38 wherein the molecular sieve is predominantly in the hydrogen form.

40. The process of claim 31 wherein the process is a process for producing a C_{20+} lube oil from a C_{20+} olefin feed comprising isomerizing said olefin feed under isomerization conditions over the catalyst.

41. The process of claim 40 wherein the molecular sieve is predominantly in the hydrogen form.

42. The process of claim 40 wherein the catalyst further comprises at least one Group VIII metal.

43. The process of claim 31 wherein the process is a process for catalytically dewaxing a hydrocarbon oil feedstock boiling above about 350°F and containing straight chain and slightly branched chain hydrocarbons comprising contacting said hydrocarbon oil feedstock in the presence of added hydrogen gas at a hydrogen pressure of about 15-3000 psi under dewaxing conditions with the catalyst.

44. The process of claim 43 wherein the molecular sieve is predominantly in the hydrogen form.

45. The process of claim 43 wherein the catalyst further comprises at least one Group VIII metal.

46. The process of claim 43 wherein said catalyst comprises a layered catalyst comprising a first layer comprising the molecular sieve and at least one Group VIII metal, and a second layer comprising an aluminosilicate zeolite which is more shape selective than

the molecular sieve of said first layer.

47. The process of claim 31 wherein the process is a process for preparing a lubricating oil which comprises:

hydrocracking in a hydrocracking zone a hydrocarbonaceous feedstock to obtain an effluent comprising a hydrocracked oil; and

catalytically dewaxing said effluent comprising hydrocracked oil at a temperature of at least about 400°F and at a pressure of from about 15 psig to about 3000 psig in the presence of added hydrogen gas with the catalyst.

48. The process of claim 47 wherein the molecular sieve is predominantly in the hydrogen form.

49. The process of claim 47 wherein the catalyst further comprises at least one Group VIII metal.

50. The process of claim 31 wherein the process is a process for isomerization dewaxing a raffinate comprising contacting said raffinate in the presence of added hydrogen under isomerization dewaxing conditions with the catalyst.

51. The process of claim 50 wherein the molecular sieve is predominantly in the hydrogen fotm.

52. The process of claim 50 wherein the catalyst further comprises at least one Group VIII metal.

53. The process of claim 50 wherein the raffinate is bright stock.

54. The process of claim 31 wherein the process is a process for increasing the octane of a hydrocarbon feedstock to produce a product having an increased aromatics content

comprising contacting a hydrocarbonaceous feedstock which comprises normal and slightly branched hydrocarbons having a boiling range above about 40°C and less than about 200°C under aromatic conversion conditions with the catalyst.

55. The process of claim 54 wherein the molecular sieve is substantially free of acid.

56. The process of claim 54 wherein the molecular sieve contains a Group VIII metal component.

57. The process of claim 31 wherein the process is a catalytic cracking process comprising contacting a hydrocarbon feedstock in a reaction zone under catalytic cracking conditions in the absence of added hydrogen with the catalyst.

58. The process of claim 57 wherein the molecular sieve is predominantly in the hydrogen form.

59. The process of claim 57 wherein the catalyst additionally comprises a large pore crystalline cracking component.

60. The process of claim 31 wherein the process is a process for alkylating an aromatic hydrocarbon which comprises contacting under alkylation conditions at least a molar excess of an aromatic hydrocarbon with a C_2 to C_{20} olefin under at least partial liquid phase conditions and in the presence of the catalyst.

61. The process of claim 60 wherein the molecular sieve is predominantly in the hydrogen form.

62. The process of claim 60 wherein the olefin is a C_2 to C_4 olefin.

63. The process of claim 62 wherein the aromatic hydrocarbon and olefin are present in a molar ratio of about 4:1 to about 20:1, respectively.

64. The process of claim 62 wherein the aromatic hydrocarbon is selected from the group

consisting of benzene, toluene, ethylbenzene, xylene, or mixtures thereof.

65. The process of claim 31 wherein the process is a process for transalkylating an aromatic hydrocarbon which comprises contacting under transalkylating conditions an aromatic hydrocarbon with a polyalkyl aromatic hydrocarbon under at least partial liquid phase conditions and in the presence of the catalyst.

66. The process of claim 65 wherein the molecular sieve is predominantly in the hydrogen form.

67. The process of claim 65 wherein the aromatic hydrocarbon and the polyalkyl aromatic hydrocarbon are present in a molar ratio of from about 1:1 to about 25:1, respectively.

68. The process of claim 65 wherein the aromatic hydrocarbon is selected from the group consisting of benzene, toluene, ethylbenzene, xylene, or mixtures thereof.

69. The process of claim 65 wherein the polyalkyl aromatic hydrocarbon is a dialkylbenzene.

70. The process of claim 31 wherein the process is a process to convert paraffins to aromatics which comprises contacting paraffins under conditions which cause paraffins to convert to aromatics with a catalyst comprising the molecular sieve and gallium, zinc, or a compound of gallium or zinc.

71. The process of claim 31 wherein the process is a process for isomerizing olefins comprising contacting said olefin under conditions which cause isomerization of the olefin with the catalyst.

72. The process of claim 31 wherein the process is a process for isomerizing an isomerization feed comprising an aromatic C_8 stream of xylene isomers or mixtures of xylene isomers and ethylbenzene, wherein a more nearly equilibrium ratio of ortho-, meta and para-xylenes is obtained, said process comprising contacting said feed under isomerization conditions with the catalyst.

73. The process of claim 31 wherein the process is a process for oligomerizing olefins comprising contacting an olefin feed under oligomerization conditions with the catalyst.

74. A process for converting lower alcohols and other oxygenated hydrocarbons comprising contacting said lower alcohol or other oxygenated hydrocarbon under conditions to produce liquid products with a catalyst comprising a molecular sieve comprising silicon oxide, zinc oxide, and an oxide selected from aluminum oxide, boron oxide, gallium oxide, iron oxide or mixtures thereof and having the framework topology of zeolite beta.

75. In a process for the reduction of oxides of nitrogen contained in a gas stream in the presence of oxygen wherein said process comprises contacting the gas stream with a molecular sieve, the improvement comprising using as the molecular sieve a molecular sieve comprising silicon oxide, zinc oxide, and an oxide selected from aluminum oxide, boron oxide, gallium oxide, iron oxide, vanadium oxide, zirconium oxide, tin oxide or mixtures thereof and having the framework topology of zeolite beta, wherein the molecular sieve contains zinc in its crystal framework.

76. The process of claim 75 wherein said molecular sieve contains a metal or metal ions capable of catalyzing the reduction of the oxides of nitrogen.

77. The process of claim 76 wherein the metal is copper, cobalt or mixtures thereof.

78. The process of claim 76 wherein the gas stream is the exhaust stream of an internal combustion engine.

79. A method of removing liquid organic compounds from a mixture of liquid organic compounds and water, comprising contacting the mixture with an all-silica molecular sieve having the framework topology of zeolite beta, a crystal size less than one micron and a water adsorption capacity of less than 0.05 g/g of molecular sieve.

80. A method of removing liquid organic compounds from a mixture of liquid organic compounds and water, comprising contacting the mixture with a molecular sieve comprising an oxide of silicon, an oxide of zinc and, optionally, an oxide selected from aluminum oxide, boron oxide, gallium oxide, iron oxide and mixtures thereof, and having the framework topology of zeolite beta, wherein the molecular sieve contains zinc in its crystal framework.